

Patent Claims

1. A magnetic linear drive (1) having a base (2) and having a first movable part (6), which can be moved along an axis (5), wherein a first force effect for movement of the first movable part (6) can be produced between the base (2) and the first movable part (6),

characterized in that

a second force effect for movement of a second movable part (12) can be produced between the first movable part (6) and the second movable part (12), which can be moved along the axis (5).

2. The magnetic linear drive (1) as claimed in claim 1, characterized in that the first force effect is a magnetic force effect.

3. The magnetic linear drive (1) as claimed in claim 1 or 2, characterized in that
the second force effect is a magnetic force effect.

4. The magnetic linear drive (1) as claimed in one of claims 1 to 3,
characterized in that
the second movable part (12) is mounted on the first movable part (6).

5. The magnetic linear drive (1) as claimed in one of claims 1 to 4,
characterized in that
a first and a second permanent magnet (10, 11) are aligned with respect to one another in such a way that, in a limit position

of the magnetic linear drive (1), the magnetic fluxes of the first permanent magnet (10) and of the second permanent magnet (11) are closed along a common path within a high-permeability multiple part core body.

6. The magnetic linear drive (1) as claimed in one of claims 1 to 5,
characterized in that
field windings (7, 8, 9) are arranged at a fixed angle with respect to the first movable part (6).

7. The magnetic linear drive (1) as claimed in one of claims 1 to 6,
characterized in that
the second movable part (12) is a plunger-type armature.

8. The magnetic linear drive (1) as claimed in one of claims 1 to 7,
characterized in that
each of the movable parts (6, 12) has an associated field winding (7, 8, 9).

9. A method for operation of a magnetic linear drive (1) as claimed in one of claims 1 to 8,
characterized in that,
during any movement of at least one of the movable parts (6, 12), a magnetic circuit which is fed jointly by a first permanent magnet (10) and a second permanent magnet (11) is separated within a high-permeability multiple part body into magnetic circuits which are fed separately.

10. A method for operation of a magnetic linear drive (1) as claimed in one of claims 1 to 8, characterized in that the time sequence of the movements of the first and of the second movable part (6, 12) is influenced by means of a control apparatus, using at least one of the field windings (7, 8, 9).